

Chapter 8

CONCRETE SEALING

The purpose of concrete sealing is to slow water intrusion into the concrete and therefore better protect the steel reinforcement. It is important to note that each of these materials requires that the concrete cure for a minimum of 28 days prior to sealing. This constraint can become the critical path in a concrete patching and sealing contract.

There are three different materials used for concrete sealing, as outlined in the paragraphs below.

A. PENETRATING WATER REPELLENT TREATMENT

This is a standard pay item described in Subsection 706.03.S of the MDOT Standard Specifications for Construction.

Usage Statement: This is a clear sealer with the consistency of water that provides a level of water repellency to horizontal and vertical concrete surfaces. Typically it is used on the vertical surface of substructure units, or concrete fascia beams, but can also be applied to deck surfaces that are relatively new and may need the protection of a water sealant. It may also be used on the top, horizontal surface of a substructure if there is no deck joint directly above. Penetrating Water Repellant Treatment offers no aesthetic value, so should only be used where aesthetics are not important.

All concrete to be sealed must be at least 28 days old. The surface of the concrete to be sealed is to be prepared using high pressure power washing or, for a relatively new deck surface, sandblasted to remove curing compound. Once the surface has dried, the material is applied using rollers.

Measure the surface area and enter the quantity on the CSM estimating sheet. The unit price includes the surface preparation and the application of the material.

Pay Item: Penetrating Water Repellent Treatment [Square Yard]

Two additional concrete sealers are described in the following Special Provisions:

B. SUBSTRUCTURE CONCRETE SEALERS, HORIZONTAL SURFACE

Date Approved: 12-18-01

Usage Statement: This material is an opaque, epoxy sealer that offers a nearly impenetrable barrier. It is used to provide a sealed surface on the top horizontal surface of pier caps or abutments that have a joint above. This material is not appropriate for a deck surface and should not be applied to substructure units where there is no joint above it, such as on pier caps of structures with pin & hangers or continuous spans.

This material should not be used to encapsulate the entire substructure unit as it does not “breathe” and can cause concrete degradation in such instances. It is also unsightly and should not be used in visible locations. Care should be taken to prevent the sealer from running beyond the edge of a horizontal surface and down a visible vertical face, such as the sides of a pier cap. It may be used on the vertical surface of an inconspicuous abutment backwall with slight modifications to the special provision.

All concrete to be sealed must be at least 28 days old. The surface is to be prepared by using a light abrasive blasting and the material is then applied using the manufacturer’s recommendations.

Measure the surface area and enter the quantity on the CSM estimating sheet. The unit price includes the surface preparation and the application of the material.

Payment for this item may be by square yards or lump sum. Special provisions for both options are included at the end of this chapter - be sure to use the appropriate one. Note that If payment is to be made by lump sum, an **informational quantity must be provided** in the proposal for the contractor to estimate the lump sum bid amount.

Pay Item:	<u>Substructure Horizontal Surface Sealer</u>	[Square Yard]
	- or -	
	<u>Substructure Horizontal Surface Sealer</u>	[Lump Sum]

C. CONCRETE SURFACE SEALERS

Date Approved: 12-18-01

Usage Statement: This material is an elastomeric sealer that provides a rubberized coating to the concrete. It can be used to seal all surfaces of concrete except traffic bearing surfaces. Besides sealing, it creates a uniform color and texture, and is recommended for use in areas where aesthetics are important.

Elastomeric sealers are often used to provide a uniform appearance to concrete elements that have been patched. A light concrete gray color is often selected to blend in with surrounding unsealed structural concrete, but other colors are available. Before selecting an original color, a consultation with Lynn Lynwood in the Roadside Development unit of the Design Division is recommended. Many Regions and TSCs have developed color schemes for specific corridors to maintain aesthetic continuity.

Concrete Surface Sealers are typically used on the vertical surfaces of substructure units, retaining walls, concrete fascia beams, concrete bridge barrier railing, and deck slab fascia. The treatment lasts longer than five years, but once coated the concrete elements must be kept coated.

All concrete to be sealed must be at least 28 days old. The surface must be carefully prepped by using a light abrasive blasting. The material is then applied using the manufacturer's recommendations.

Measure the surface area and enter the quantity on the CSM estimating sheet. The unit price includes the surface preparation and the application of the material.

Payment for this item may be by square yards or lump sum. Special provisions for both options are included at the end of this chapter - be sure to use the appropriate one. Note that If payment is to be made by lump sum, an **informational quantity must be provided** in the proposal for the contractor to estimate the lump sum bid amount.

Pay Item:	<u>Concrete Surface Sealer</u>	[Square Yard]
	- or -	
	<u>Concrete Surface Sealer</u>	[Lump Sum]

